

CONTENTS

GENERAL INVITED LECTURES

A.V.Phelps	
DISCHARGES AT EXTREMELY HIGH VALUES OF E/n AND LOW CURRENTS	2
W.Botticher	
IONIZATION KINETICS IN SHOCK HEATED RARE GASES	10
<u>W.J.Wittteman</u> , P.J.M.Peters and G.J.Ernst	
EXIMER LASERS	20
<u>A.H.Guenther</u> and J.R.Bettis	
RECENT ADVANCES IN OPTICALLY CONTROLLED DISCHARGES	28
<u>W.Ebeling</u> , A.Forster, R.Redmer, T.Rother and M.Schlanges	
INSTABILITIES AND PHASE TRANSITIONS IN DENSE HYDROGEN, RARE GAS AND ALKALI PLASMAS	40
J.Perrin	
THE MULTI-DISCIPLINARY TASK OF PLASMA DEPOSITION STUDIES; THE GROWTH OF HYDROGENATED AMORPHOUS SILICON INDUCED BY SILANE DISCHARGES	54
M.V.Nezlin, E.N.Snezhkin and <u>A.S.Trubnikov</u>	
ANALOGUE SIMULATION STUDY OF DRIFT VORTICES (SOLITONS) IN PLASMAS AND SPIRAL STRUCTURES	70
F.J.Weinberg	
COMBUSTION AND PLASMAS	82
A.V.Gaponov-Grekhov and <u>M.I.Rabinovitch</u>	
NONLINEAR DYNAMICS OF NONEQUILIBRIUM MEDIA; SPATIO-TEMPORAL CHAOS	90
H.R.Griem	
STARK BROADENING AND SHIFTS OF SPECTRAL LINES IN PLASMAS	100

TOPICAL INVITED LECTURES

*Subject Area: Waves and instabilities including self-organization
processes*

<u>H.L.Pecseli</u> , H.Johnsen, J.Trulsen and T.Mikkelsen	
CONDITIONAL EDDIES, OR CLUMPS, IN PLASMA TURBULENCE	108
Y.Nakamura	
EXPERIMENTS ON ION-ACOUSTIC SOLITONS IN A MULTICOMPONENT PLASMA WITH NEGATIVE IONS	116

Subject Area: Interactions of plasmas with particle and laser beams

F.Leuterer

NONINDUCTIVE CURRENT DRIVE WITH LOWER HYBRID WAVES IN THE ASDEX TOKAMAK 126

Subject Area: Plasma in space

R.Z.Sagdeev, V.D.Shapiro, V.I.Shevchenko and K.Szego

PLASMA PHENOMENA AROUND COMETS: INTERACTION WITH THE SOLAR WIND 134

L.Thomas

IONIZATION PROCESSES IN THE IONOSPHERIC PLASMA 144

Subject Area: Physical aspects of plasma chemistry and plasma processes of surfaces

G.M.W.Kroesen and D.C.Schram

POSSIBILITIES AND LIMITATIONS OF PLASMA DEPOSITION 156

J.A.Rees

PLASMA AND PLASMA-ASSISTED PROCESSING OF SEMI-CONDUCTOR MATERIALS 164

A.Rutscher and H.E.Wagner

METHOD OF GENERALISED MACROSCOPIC KINETICS IN MODELLING OF PLASMA CHEMICAL REACTIONS 172

Subject Area: Non-ideal plasmas

G.J.Kalman

COLLECTIVE MODES IN STRONGLY COUPLED PLASMAS 182

Subject Area: Elementary processes

V.M.Akulin, N.V.Karlov and E.M.Khokhlov

FRAGMENTATION OF VIBRATIONALLY EXCITED MOLECULES BY ELECTRON IMPACT AND U-V RADIATION 190

I.Ogawa and T.Koizumi

SWARM PARAMETERS AND MOMENTUM-TRANSFER CROSS-SECTIONS FOR LOW-ENERGY ELECTRONS IN INERT GASES 200

Subject Area: Electrode and surface effects

F.G.Baksht, V.G.Ivanov and V.G.Yuriev

NEAR-ELECTRODE PHENOMENA IN LOW-TEMPERATURE PLASMA 206

Subject Area: Low pressure glows, radio frequency, high frequency and microwave discharges

C.M.Ferreira, J.Loureiro and A.B.Sa
THE MODELLING OF HIGH-FREQUENCY DISCHARGES AT LOW AND INTERMEDIATE PRESSURE 220

S.I.Gritsinin, I.A.Kossyi, V.P.Silakov and N.M.Tarasova
HIGH-PRESSURE DISCHARGES IN ELECTROMAGNETIC WAVE BEAMS 232

Subject Area: Coronas, sparks and high pressure glows

T.E.Allibone
HIGH-VOLTAGE D.C. BREAKDOWN 240

T.Nitta and Y.Arahata
INFLUENCE OF THE STATIC ELECTRIC CHARGES ON HIGH VOLTAGE D.C. BREAKDOWN IN COMPRESSED SF₆ GAS 250

Subject Area: Arcs

R.Schafer
NEW DEVELOPMENTS IN GAS DISCHARGE LIGHT SOURCES 258

Subject Area: Numerical modelling

R.Morrow
NUMERICAL MODELLING OF TIME-DEPENDENT ELECTRICAL BREAKDOWN IN NON-UNIFORM ELECTRIC FIELDS 268

Subject Area: Discharges for generation of laser radiation

J.Bretagne
RELATIVISTIC ELECTRON-BEAM-PRODUCED PLASMAS AND HIGH PRESSURE REACTION KINETICS 278

H.H.Telle
DISCHARGE PROPERTIES FOR CONTINUOUS WAVE METAL VAPOUR LASERS 288

Subject Area: Generation and dynamics of plasma flows

S.K.Handel
DENSE PLASMA CAPILLARY DISCHARGES 296

Subject Area: Plasma spectroscopy (including laser-induced fluorescence)

B.Dubreuil

LASER INDUCED FLUORESCENCE: HOW TRANSFERS DRIVE EXCITED STATE POPULATIONS TOWARD EQUILIBRIUM 302

J.M.Labat and S.Bukvic

INFLUENCE OF IMPURITIES ON THE OPTOGALVANIC EFFECT 308

Subject Area: Diagnostic Methods

Yu.I.Ostrovsky

HOLOGRAPHIC INTERFEROMETRIC DIAGNOSTICS OF PLASMAS 316

H.Winter and F.Aumayr

LITHIUM BEAM-ACTIVATED PLASMA DIAGNOSTICS 324

Appendix

W.T.Williams

SOME STATISTICS ON ICPIG XVIII 332

INDEX

334